

Claims

[c1] What is claimed is:

1. An electronic device comprising:

a primary circuit board;

a secondary circuit board fixed on the primary circuit board; and

a plurality of metallic balls electrically connected to a bottom surface of the primary circuit board and a top surface of the secondary circuit board for transmitting signals between the primary circuit board and the secondary circuit board.

[c2] 2. The electronic device of claim 1 further comprising a thin layer of adhesive which is used for adhering the plurality of metallic balls to the secondary circuit board.

[c3] 3. The electronic device of claim 2 wherein the adhesive is a flux.

[c4] 4. The electronic device of claim 1 wherein the secondary circuit board is a circuit board with a communication module.

[c5] 5. The electronic device of claim 1 wherein the secondary circuit board comprises at least an electronic component

for receiving and transmitting a first type of signal, at least an electronic component for receiving and transmitting a second type of signal, and a metallic frame for dividing the electronic component for receiving and transmitting the first type of signal and the electronic component for receiving and transmitting the second type of signal into different sides of the secondary circuit board.

[c6] 6.The electronic device of claim 5 wherein the first type of signal is a signal of a baseband circuit, and the second type of signal is a signal of an RF circuit.

[c7] 7.The electronic device of claim 5 wherein the metallic frame has a shape that comprises two substantially parallel line segments joined at corresponding ends by a line segment that is substantially perpendicular to the two parallel line segments.

[c8] 8.The electronic device of claim 5 wherein a protrusion is positioned on one side of the metallic frame.

[c9] 9.The electronic device of claim 5 further comprising a metallic shielding cap covering the secondary circuit board for shielding the plurality of electronic components of the secondary circuit board to prevent the plurality of electronic components from being interfered by

electromagnetic radiation.

- [c10] 10.The electronic device of claim 9 wherein a top of the metallic frame is capable of bonding with the metallic shielding cap when the metallic shielding cap covers the secondary circuit board.
- [c11] 11.The electronic device of claim 1 wherein a plurality of electronic components is set on the secondary circuit board, and the electronic device further comprises a metallic shielding cap for shielding the plurality of electronic components of the secondary circuit board to prevent the plurality of electronic components from being interfered with by electromagnetic radiation.
- [c12] 12.The electronic device of claim 1 wherein at least a metallic ball is used for a signal output of the secondary circuit board, and metallic balls adjacent to the signal output provide grounding.
- [c13] 13.The electronic device of claim 1 wherein the secondary circuit board is a printed circuit board.
- [c14] 14.The electronic device of claim 1 wherein the metallic balls are made of an alloy of tin and lead.
- [c15] 15.The electronic device of claim 1 wherein the metallic balls are made of an alloy of tin and lead having a ratio

of tin to lead of 63:47.

[c16] 16.The electronic device of claim 1 wherein a number of the metallic balls is not less than 145.

[c17] 17.A method of connecting a primary circuit board with a secondary circuit board, at least an electronic component being set on the primary circuit board, the secondary circuit board comprising a first side and a second side, and a plurality of electronic components being set on the first side of the secondary circuit board, the method comprising:

adhering a plurality of metallic balls to the second side of the secondary circuit board;

heating and melting the plurality of metallic balls in accordance with a particular relationship between temperature and time, to make the plurality of metallic balls connect with the secondary circuit board;

bonding the plurality of metallic balls connected with the second side of the secondary circuit board to the primary circuit board; and

heating and melting the plurality of metallic balls bonded to the primary circuit board in accordance with the particular relationship between temperature and time, to make the primary circuit board connect with the secondary circuit board by means of the plurality of metallic balls;

wherein the plurality of metallic balls is used for signal transmission between the plurality of electronic components on the first side of the secondary circuit board and the electronic component on the primary circuit board.

[c18] 18.The method of claim 17 wherein the secondary circuit board is a circuit board with a communication module.

[c19] 19.The method of claim 17 further comprising a metallic shielding cap covering the first side of the secondary circuit board for shielding the plurality of electronic components on the first side of the secondary circuit board to prevent the plurality of electronic components from being interfered with by electromagnetic radiation.

[c20] 20.The method of claim 17 wherein the plurality of electronic components on the secondary circuit board is divided into at least an electronic component for receiving and transmitting a first type of signal, and at least an electronic component for receiving and transmitting a second type of signal, and the method further comprises providing a metallic frame set on the first side of the secondary circuit board for dividing the electronic component receiving and transmitting the first type of signal and the electronic component for receiving and transmitting the second type of signal into different sides of the secondary circuit board.

- [c21] 21.The method of claim 20 wherein the first type of signal is a signal of a baseband circuit, and the second type of signal is a signal of an RF circuit.
- [c22] 22.The method of claim 20 wherein the metallic frame has a shape that comprises two substantially parallel line segments joined at corresponding ends by a line segment that is substantially perpendicular to the two parallel line segments.
- [c23] 23.The method of claim 20 wherein a protrusion is positioned on one side of the metallic frame.
- [c24] 24.The method of claim 17 wherein at least a metallic ball is used for a signal output of the secondary circuit board, and metallic balls adjacent to the signal output provide grounding.
- [c25] 25.The method of claim 17 wherein the secondary circuit board is a printed circuit board.
- [c26] 26.The method of claim 17 wherein a number of the metallic balls is not less than 145.